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(54) **INERTIA ACTIVATED PROJECTILE BLASTER AND METHODS**

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(51) **Int. Cl.**

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A63H 33/00	(2006.01)
F41B 11/89	(2013.01)
F41B 11/642	(2013.01)

(52) **U.S. Cl.**
CPC ***F41B 11/89*** (2013.01); ***A63H 33/00*** (2013.01); ***F41B 7/08*** (2013.01); ***F41B 11/642*** (2013.01)

(58) **Field of Classification Search**
CPC F41B 11/642; F41B 11/89; F41B 7/08; A63H 33/00
USPC 124/1, 22, 40, 56, 59, 64, 65, 66, 67, 16; 446/26, 473, 487
See application file for complete search history.

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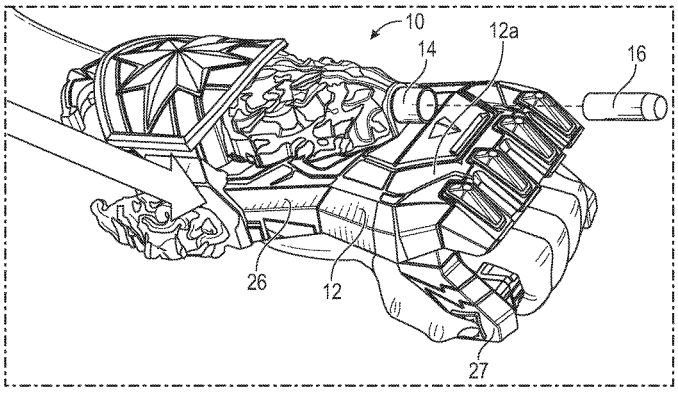
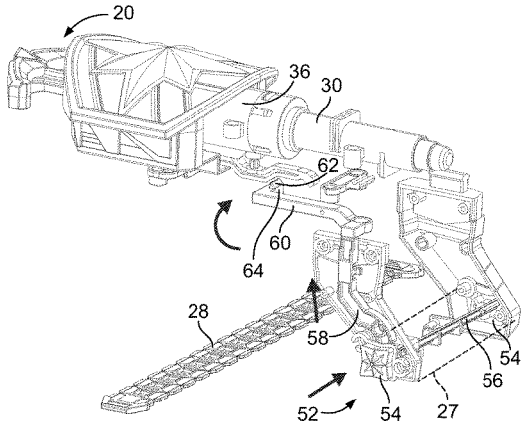
(57) **ABSTRACT**

A toy projectile apparatus which simply yet uniquely employs inertia, a weighted mass to trip a release point trigger release mechanism, and a safety mechanism latched to the weighted mass structure for releasing the mass to trigger shooting of the projectiles. The weighted mass cooperates with a release point trigger release mechanism which includes a trigger linkage and a release point element. The weighted mass will advance/shift/move with the trigger linkage toward a release point element when a force of a certain acceleration is applied to the projectile apparatus by a user.

20 Claims, 12 Drawing Sheets





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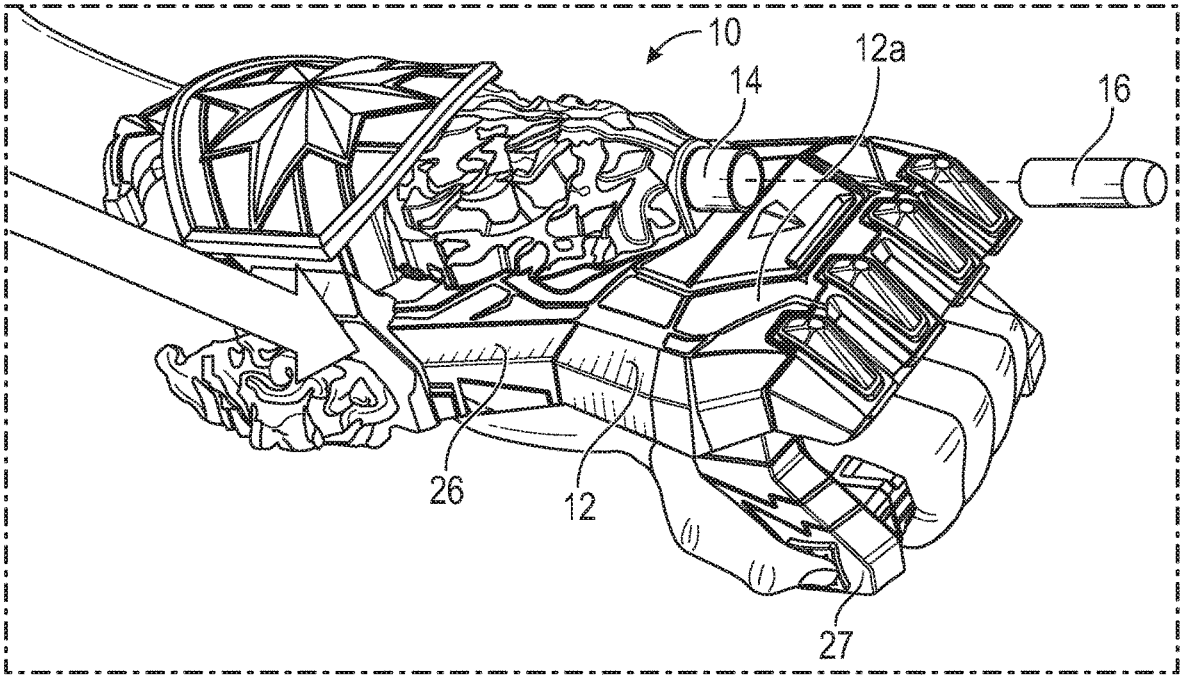

FIG. 1A

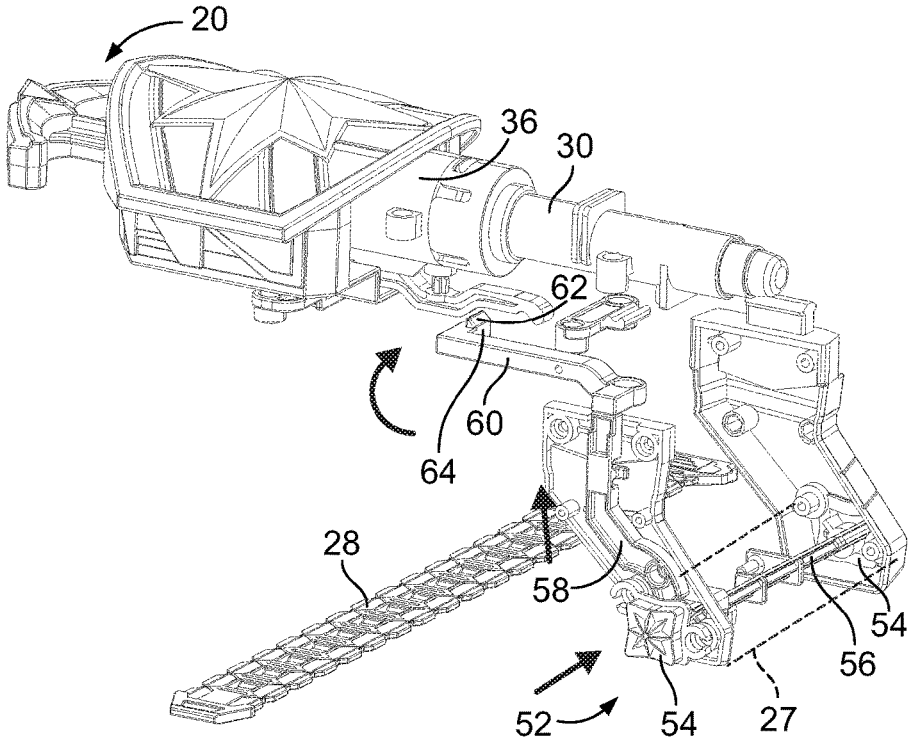

FIG. 1B

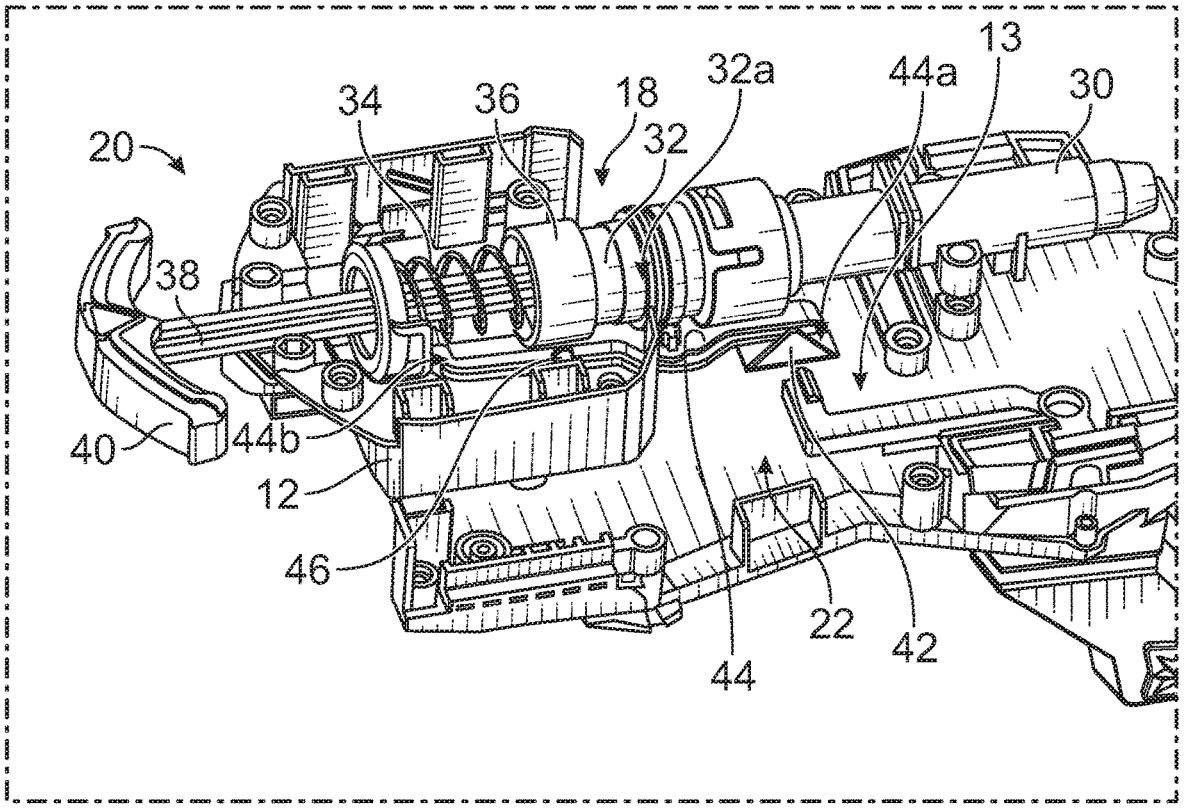

FIG. 1C

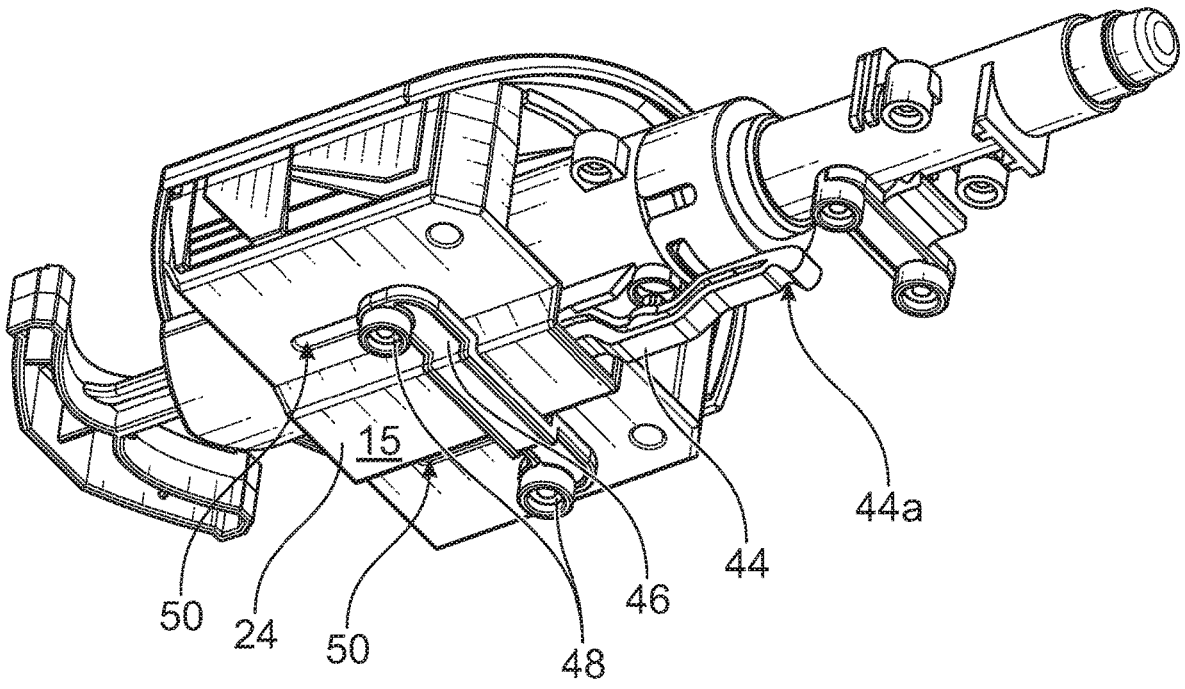

FIG. 1D

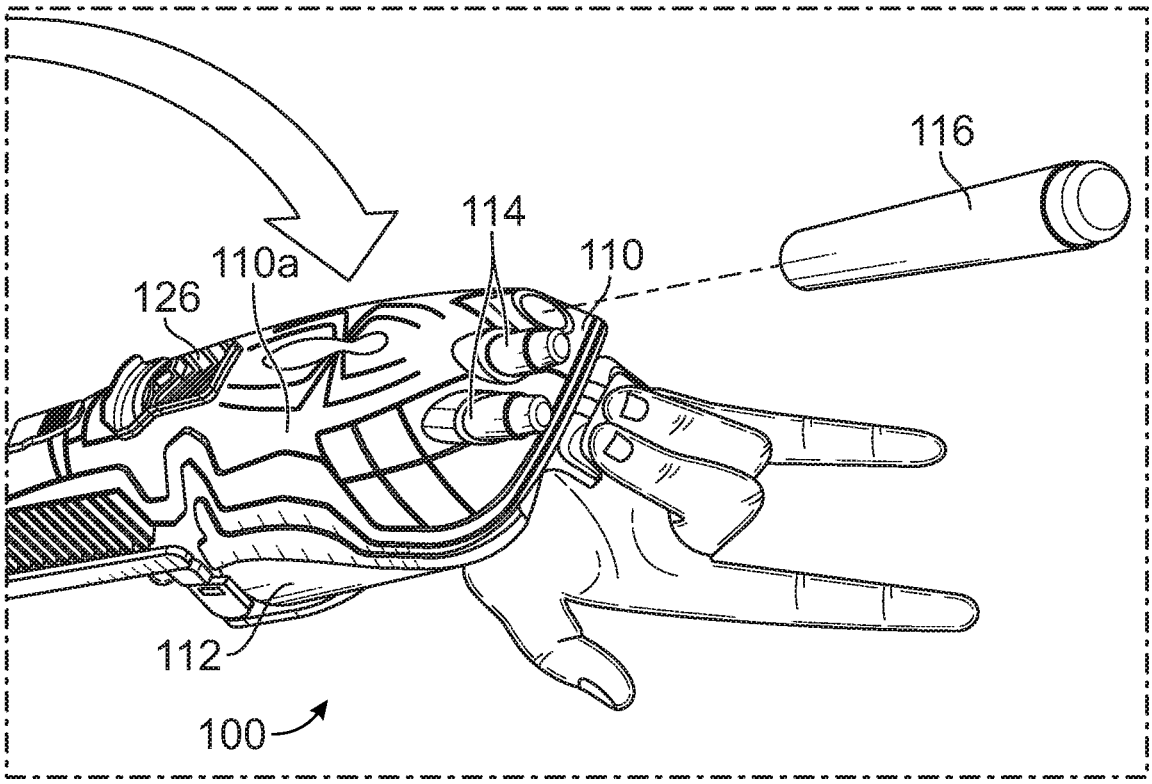

FIG. 2A

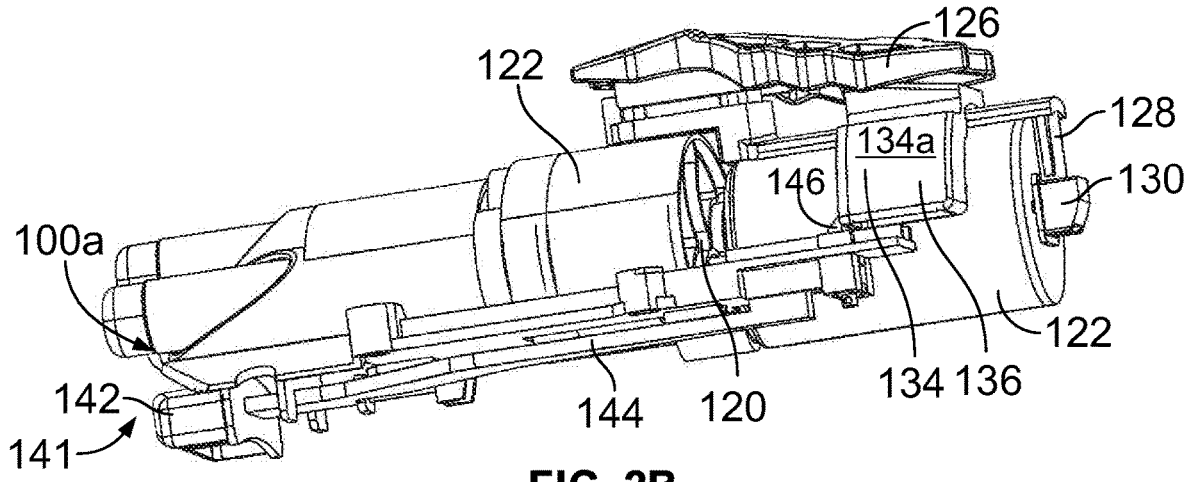
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FIG. 2B

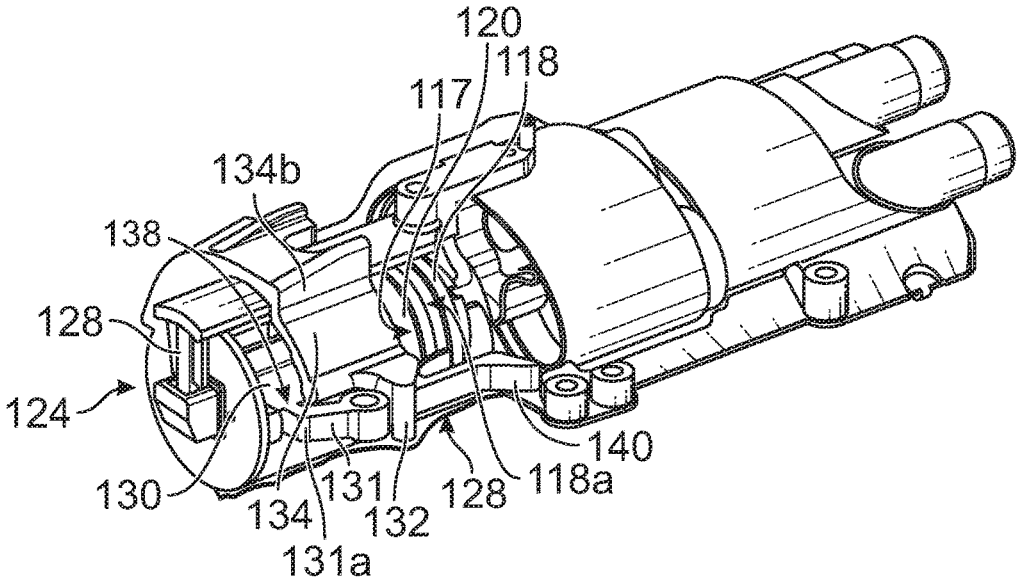
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FIG. 2C

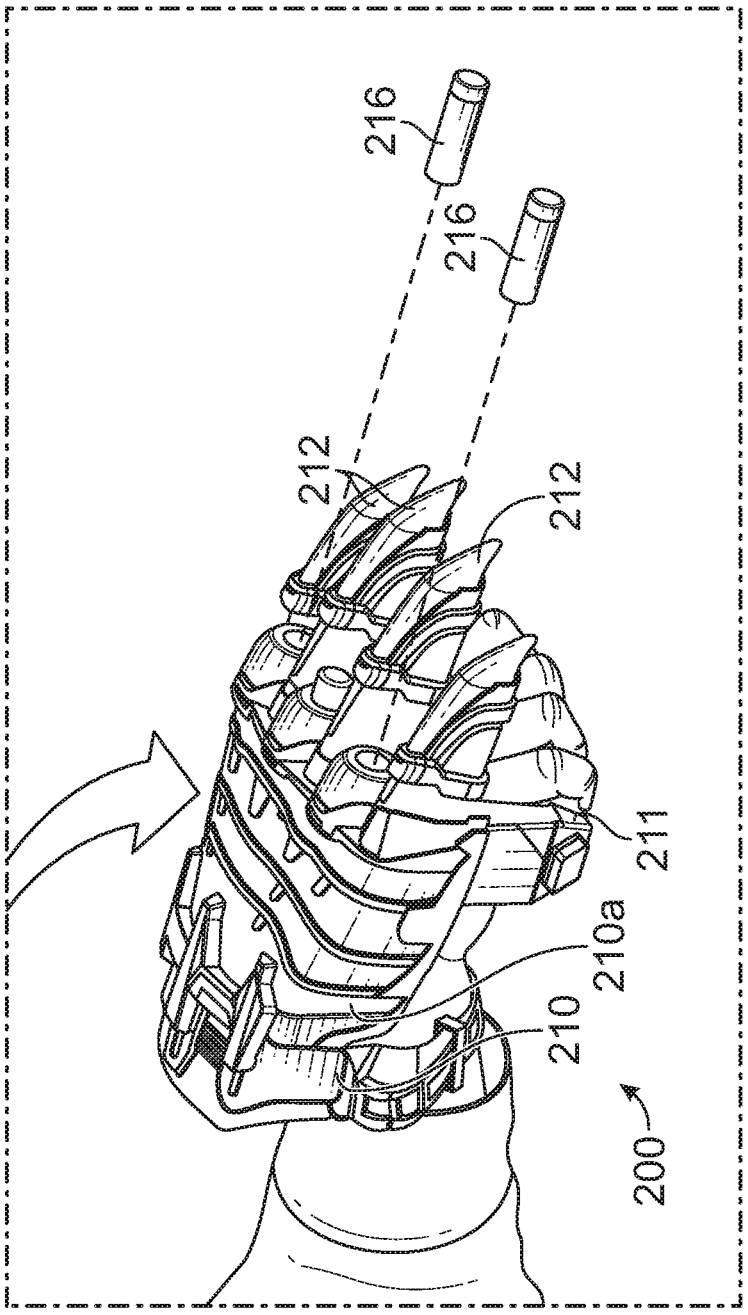

FIG. 3A

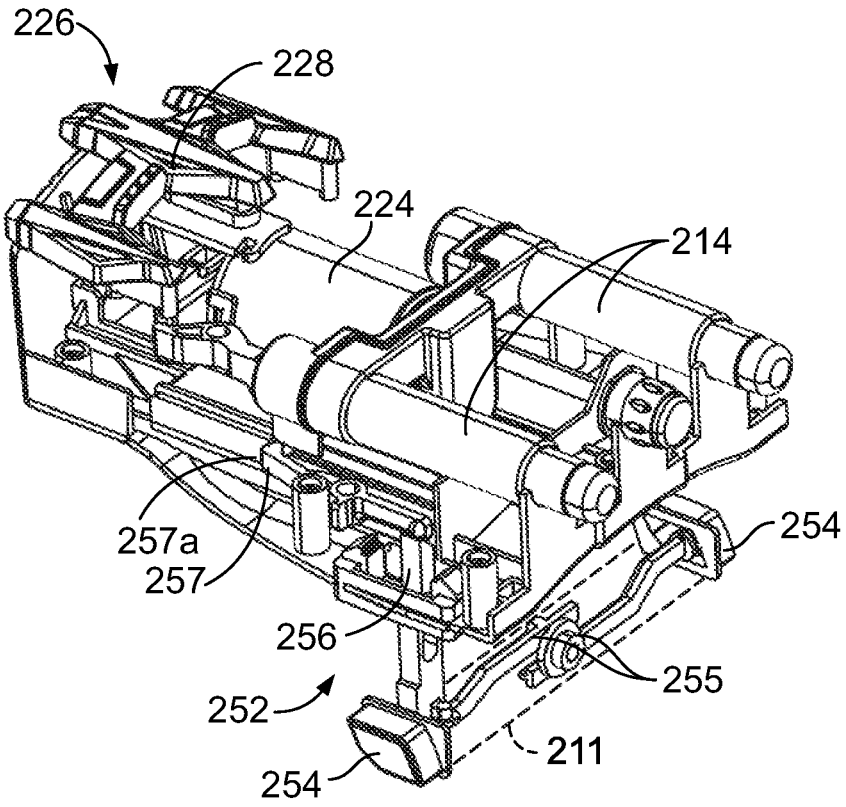

FIG. 3B

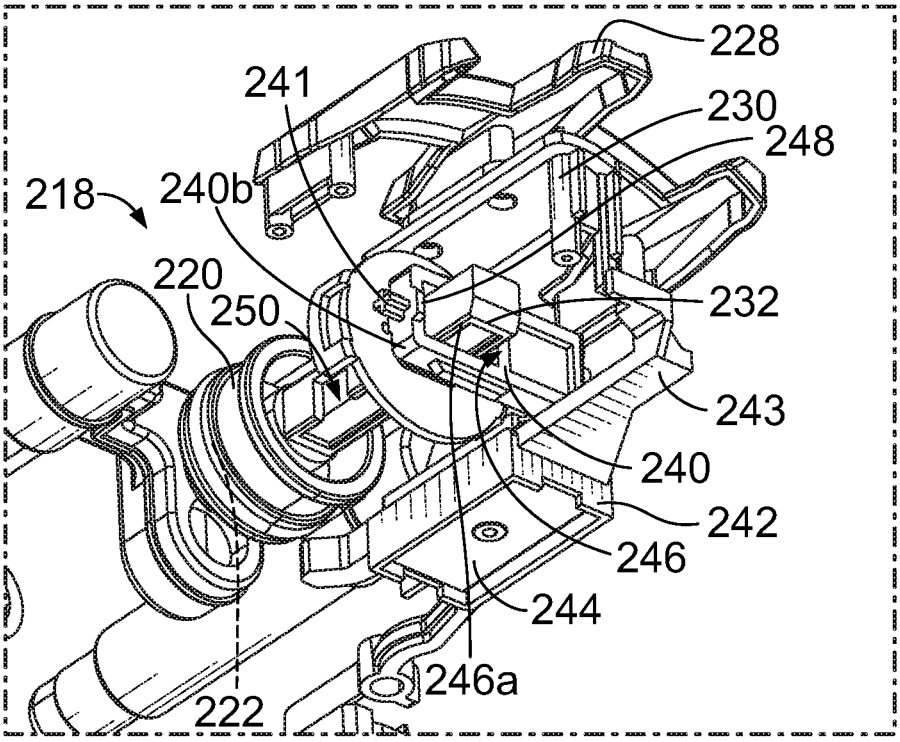
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FIG. 3C

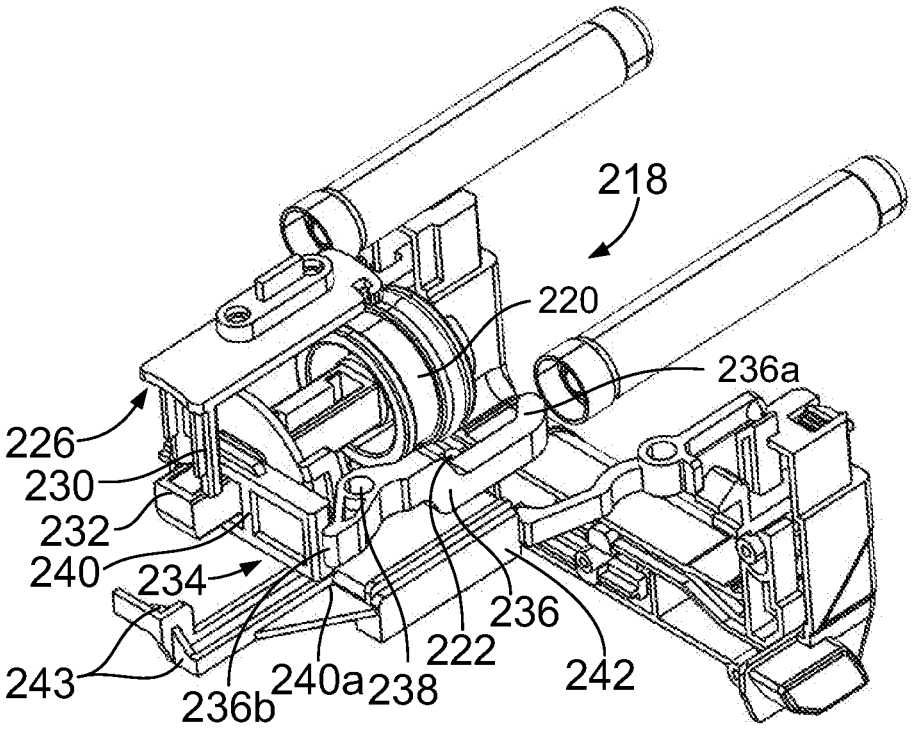
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FIG. 3D

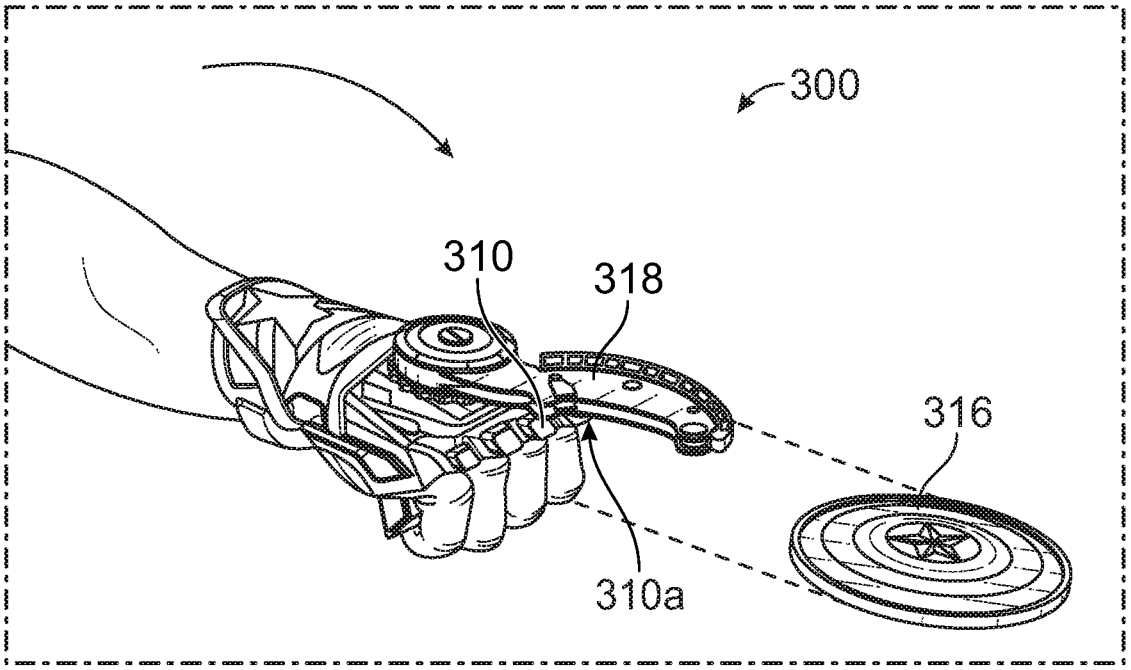

FIG. 4A

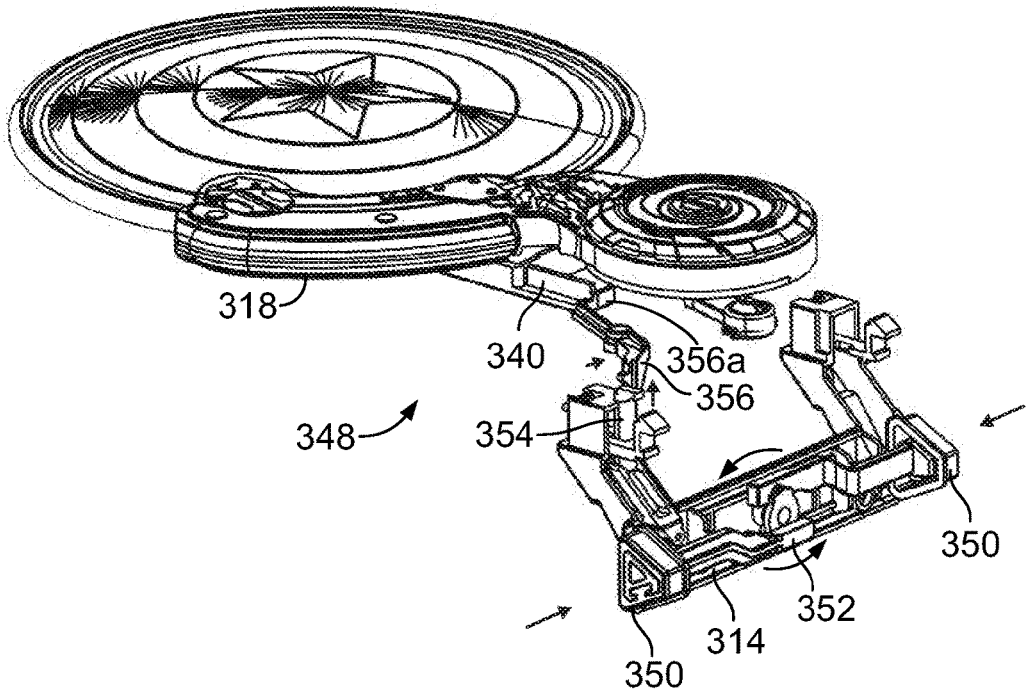
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FIG. 4B

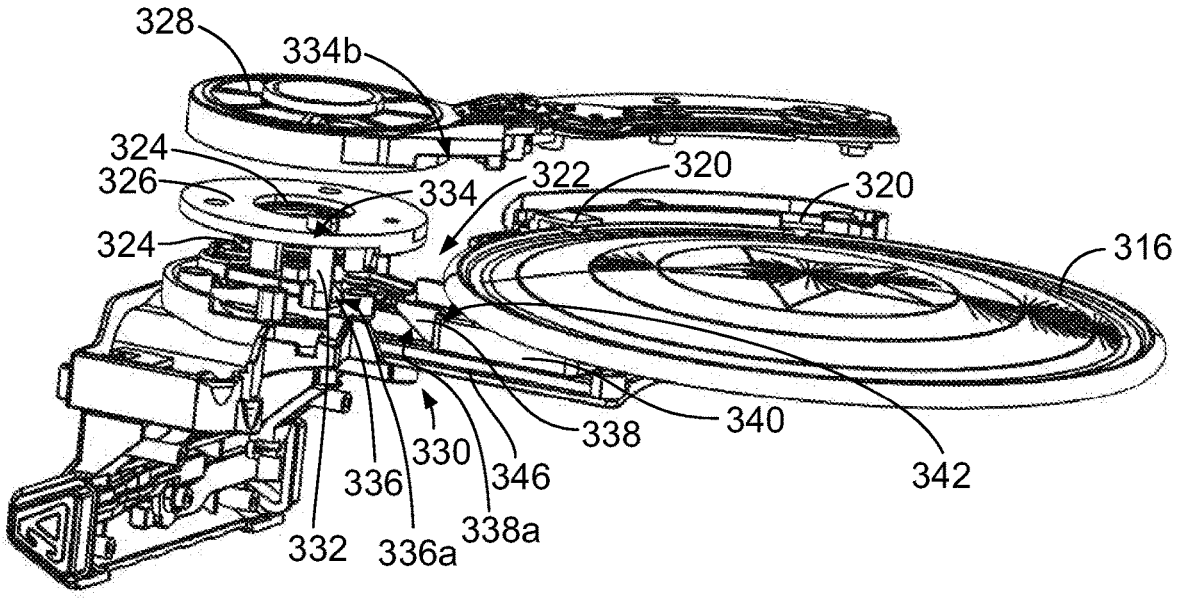
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FIG. 4C

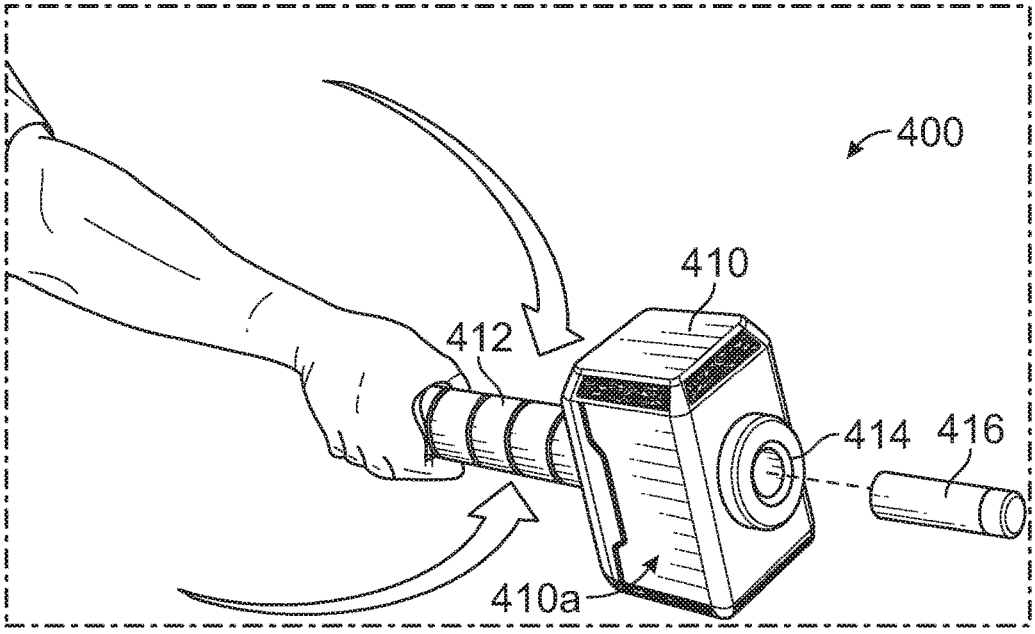

FIG. 5A

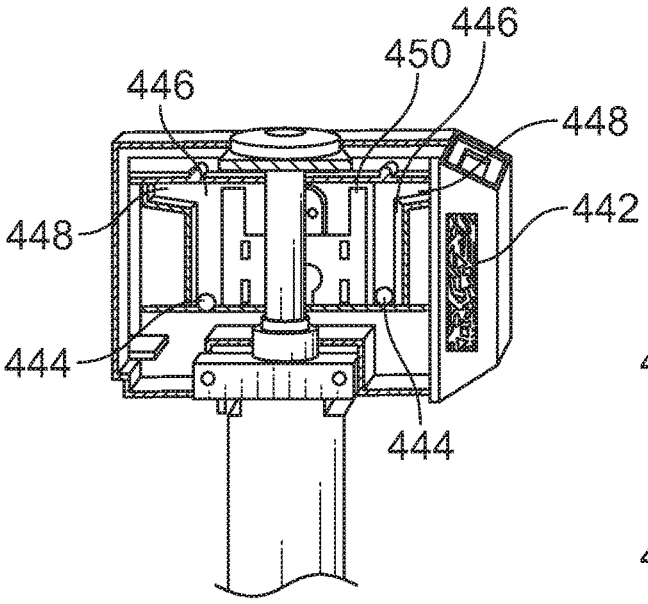

FIG. 5B

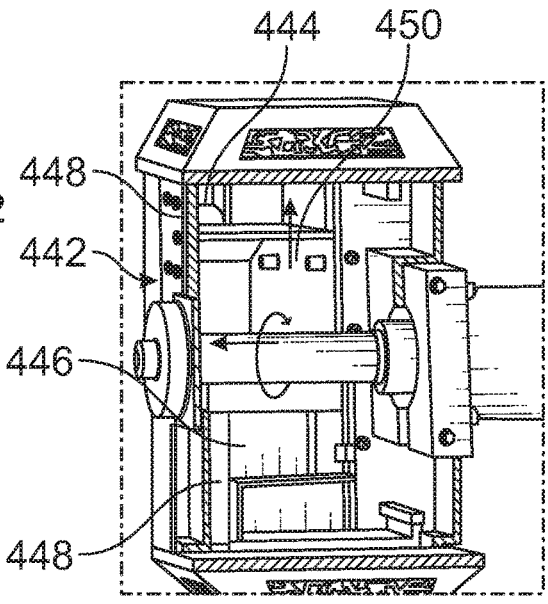

FIG. 5C

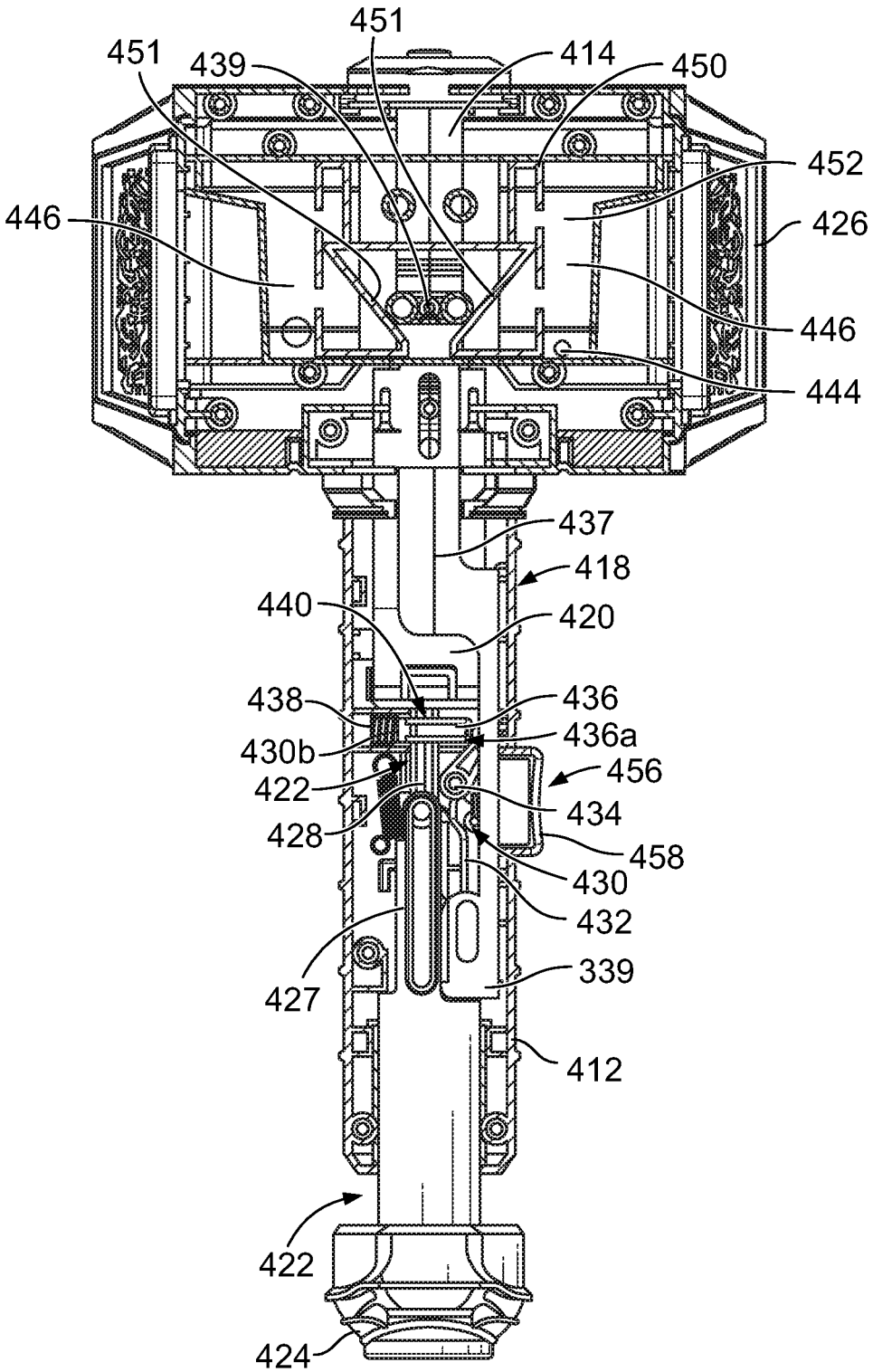
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FIG. 5D

INERTIA ACTIVATED PROJECTILE BLASTER AND METHODS

PRIORITY CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority pursuant to 35 U.S.C. 119(e) from U.S. Provisional Patent Application No. 62/871,580 filed on Jul. 8, 2019.

1. FIELD OF THE INVENTION

The present invention relates to toys and more particularly to a toy projectile blaster with an inertia trigger mechanism including an actuator movement mass that is selectively activated for shooting a projectile when the apparatus experiences a certain acceleration.

2. BACKGROUND OF THE INVENTION

Many kinds of shooting toys exist and are designed for the amusement of children and adults alike. Shooting toys come in various shapes with some of the most common toys shaped like guns of all sizes. Some known projectile discharge apparatuses include held or worn devices which are capable of shooting numerous projectiles. Some of these apparatuses are shaped like guns employing a variety of discharge ports and distribution mechanisms to conduct the pressurized gas or liquid to the discharge ports in order to eject solid projectiles or liquid and gas. Other known apparatuses are worn on the back of the hand of a user and employ a plurality of chambers capable of receiving numerous projectiles which are deployed by pulling each one of the multiple triggers linked to each one of the plurality of chambers. None of these projectile apparatuses however, employ an inertia trigger mechanism including an actuator movement mass that is selectively activated for shooting the projectile when the apparatus experiences a certain acceleration.

There is a known projectile discharge apparatus which employs a wearable housing which includes dart chambers. A curved trigger which is actuated by one or more fingers of a user is associated with each dart chamber to launch each dart separately, as exemplified and disclosed in reissued U.S. Pat. No. RE37,616, reissued Apr. 2, 2002 to Schumacher. A wearable housing is fit over the back of a user's hand with the user's fingers sliding through each curved trigger portion. Five projectile chambers are disposed on the housing for frictionally containing five darts at the same time. Each chamber includes a discharge member which is manually primed and includes a recessed portion into which an end of the trigger, opposite the curved finger portion, inserts, until the trigger is pulled by the user's finger to fire each dart.

Other known wearable projectile launchers include a wrist mounted launcher and/or gloves having dart and disc chambers disposed on the back of a user's hand and employing a trigger mechanism located at the dart or disc chamber for manually depressing, pushing or pulling by a user to fire the dart or disc. Other known wearable projectile launchers include a belt accessory strapping a launcher housing to the waist of a user and a firing mechanism secured to a body plate and worn by a user. A trigger button is depressed by the user to singly or automatically fire darts from the launcher housing strapped to the users belt, or a trigger handle is pulled to fire darts from the body plate or removed and fire darts from a hand held gun device.

U.S. Pat. No. 8,567,378 issued Oct. 29, 2013 to Nugent and assigned to Hasbro, Inc. entitled "Air Path and Safety Valve System for Toy Launchers" is hereby incorporated in its entirety by reference, and discloses an air path and improved safety valve combination for a toy air gun. An air passageway between multiple barrels includes multiple valve elements movable between an open and a closed position. A blast of compressed air is directed to an associated barrel for firing if a dart is contained within, or alternatively, the blast of compressed air will be diverted to cascade to the next barrel until a barrel with a loaded dart found.

Significantly, known projectile apparatuses and devices do not disclose or employ an intervening weight mass structure into the trigger linkages and a safety mechanism latched to the intervening weight mass structure for dictating when the mass will trigger shooting of the projectile. The weighted mass is locked by the safety mechanism when cocking the launcher and then released to a ready position where inertia will activate and trip the release point trigger release mechanism to shoot the projectile. The weighted mass cooperates with a release point trigger release mechanism which includes a trigger linkage and a release point element. The weighted mass will advance/shift/move with the trigger linkage toward the release point element when a force of a certain acceleration is applied to the projectile apparatus by a user. Alternatively, the weighted mass will advance/shift/move with the release point element toward the trigger linkage when a force of a certain acceleration is applied to the projectile apparatus by the user. The force applied can include as a punch, swipe, fling, chop, or other move, etc, of a user's hand/arm while wearing or holding the projectile apparatus. As the force is applied, the weighted mass, based on inertia, will advance/shift/move toward either the trigger linkage or the release point element to trip the release point trigger release mechanism and thus use inertia to shoot the dart.

SUMMARY OF THE INVENTION

The present invention addresses shortcomings of the prior art to provide a toy projectile apparatus which simply yet uniquely employs inertia, a weighted mass to trip a release point trigger release mechanism, and a safety mechanism latched to the weighted mass structure for releasing the mass to trigger shooting of the projectiles. The weighted mass cooperates with a release point trigger release mechanism which includes a trigger linkage and a release point element. The weighted mass will advance/shift/move with the trigger linkage toward a release point element when a force of a certain acceleration is applied to the projectile apparatus by a user. Alternatively, the weighted mass can advance/shift/move with the release point element toward the trigger linkage when a force of a certain acceleration is applied to the projectile apparatus by the user. The force applied can include as a punch, swipe, fling, chop, or other move, etc., of a user's hand/arm while wearing or holding the projectile apparatus. As the force is applied and the safety mechanism is released, the weighted mass, based on inertia, will advance/shift/move toward either the trigger linkage or the release point element to trip the release point trigger release mechanism and thus use inertia to shoot the projectile.

In one embodiment of the invention, a toy projectile apparatus includes a housing assembly with at least one projectile receiving assemblage. A projectile is received into the receiving assemblage and movably deployed within the assemblage. A launching mechanism, adjacent the projectile

receiving assemblage, operates to launch the projectile from the assemblage, and a priming mechanism engages the launching mechanism for manual priming of the launching mechanism. A safety mechanism engages an actuator movement mass, and must release the mass before a "Power move" performed by a user will advance/shift the mass to shoot the projectile.

The launching mechanism and priming mechanism can form a sub-assembly within the housing of the apparatus. Generally, the launching mechanism includes a piston and compression launch spring housed within a cylinder. The priming mechanism includes a plunger rod affixed to the piston and a grip portion of the plunger rod disposed opposite a rod end affixed to the piston. The piston is movable with respect to the cylinder and apparatus housing assembly and is drawn away from the projectile receiving assemblage when primed by the plunger rod. Alternatively, the launching mechanism can include a torsion spring within a sub-housing assembly topped by a cap for ease in winding the torsion spring/launching mechanism to a primed position. The user grips the cap of the sub-housing assembly and rotates the assembly counter-clockwise until the torsion spring is wound to a primed position.

A release point trigger release mechanism is disposed within the housing assembly and engaging the launching mechanism. An actuator movement mass is deployed at the housing assembly and engages the release point trigger release mechanism. The actuator movement mass is selectively activated through a certain acceleration/"power move" to trip the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage.

The release point trigger release mechanism further includes a release point element affixed within the housing assembly and a trigger linkage disposed within the housing pivotably connected to move with the actuator movement mass for engaging the launching mechanism until actuated by selective movement of the actuator movement mass. Alternatively, the release point trigger release mechanism further includes one or more trigger linkages pivotably affixed within the housing assembly for engaging the launching mechanism and a release point element disposed within the housing and connected to move with the actuator movement mass when the apparatus experiences a certain acceleration.

In another embodiment, the actuator movement mass includes only a sub-housing assembly latched to the safety mechanism, which has enough weight and mass sufficient to trigger the release point trigger release mechanism and shoot a projectile when the safety mechanism has released the sub-housing assembly for movement. Additionally, the actuator movement mass and/or sub-housing assembly, can be disposed within the housing assembly or outside of the housing assembly.

The safety mechanism includes one or more linkage assemblies latching the actuator movement mass to a safety button accessible to a user for depressing and holding to release the safety mechanism from the mass and allowing the apparatus to shoot the projectile.

In another embodiment, a safety mechanism including a ball and channel configuration is included for preventing movement of the actuator movement mass and/or sub-housing assembly until the apparatus is aligned in such a position as to allow the ball to roll into a dip in the channel and free the mass to shift allowing the apparatus to shoot the projectile when desired by a user. In yet another embodiment, a wearable outer housing assembly is included for securing the housing to the user for a certain acceleration of the apparatus by the user.

The actuator movement mass is selectively activated through a particular movement of the toy projectile apparatus to activate the inertia trigger mechanism for shooting the projectile when the apparatus experiences a certain acceleration, as discussed above. "Power moves," of the toy projectile apparatuses by the user, provides the particular force and direction needed to advance/shift/move the actuator movement mass to trip the inertia trigger mechanism. For example, a Captain Marvel superhero inspired toy projectile apparatus would require a user to perform a punching motion when wearing the Captain Marvel projectile apparatus in order to advance the actuator movement mass and shoot the projectile. The punching motion is a "Power move" of Captain Marvel and the outer housing design and embellishment of the Captain Marvel projectile apparatus suggests to the user that the "Power move" to be performed would be a punching motion.

Additionally, alternative toy projectile apparatuses inspired by other superheroes' include alternative outer housing assembly designs and embellishments, some with wearable component and some including hand held housing assemblies, but each inspired by and indicating a particular superhero. The look of the outer housing assembly of each also suggests a "Power move" by the corresponding superhero, to be performed by the user in order to shoot projectiles from the apparatus. For example, a Spiderman inspired toy projectile apparatus would suggest a palm up flip of the wrist "Power move" to shoot projectiles, a Black Panther inspired toy projectile apparatus would suggest a cat like paw swipe "Power move" to shoot projectiles, a Captain America inspired toy projectile apparatus suggesting a frisbee like flick of the arm disc throw "Power move" to shoot projectiles, and a Thor inspired toy projectile apparatus would suggest a hand held hammer swing motion "Power move" to shoot projectiles. It is also contemplated that various other superhero inspired toy projectile apparatuses could be included.

In another embodiment, a method for shooting a projectile from a toy projectile apparatus, including the steps of: providing a housing assembly having at least one projectile receiving assemblage, loading a movably deployable projectile into the projectile receiving assemblage, providing a launching mechanism adjacent the projectile receiving assemblage for launching the projectile from the assemblage. Manually priming the launching mechanism with a priming mechanism, engaging the launching mechanism with a release point trigger release mechanism disposed within the housing assembly, and providing an actuator movement mass deployed at the housing assembly and engaging the release point trigger release mechanism, selectively activating the actuator movement mass through a certain acceleration to trip the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage.

BRIEF DESCRIPTION OF THE DRAWINGS

For the purpose of facilitating an understanding of the invention, the accompanying drawings and detailed description illustrate a preferred embodiment thereof, from which the invention, its structures, its constructions and operations, its processes, and many related advantages may be readily understood and appreciated.

FIG. **1**A is a perspective view of a toy projectile apparatus according to the present invention, illustrating a wearable housing assembly with Captain Marvel indicia with a user releasing the safety mechanism and applying a Captain Marvel recognizable punching move to shoot a projectile from a projectile receiving assemblage;

FIG. **1**B illustrates a safety mechanism at a rail/handle housing, latched to an actuator mass and/or the sub-housing assembly within the wearable housing for preventing advancing/shifting of the actuator movement mass until shooting the projectile is desired by the user;

FIG. **1**C illustrates a launching and priming mechanism sub-assembly and an actuator movement mass and release point trigger release mechanism within the housing assembly, with a trigger linkage movable with the mass and a release point element affixed to the housing assembly, while FIG. **1**D illustrates a sub-housing assembly containing the actuator movement mass and advancing along a defined path with an affixed trigger linkage;

FIG. **2**A is a perspective view of an alternative embodiment of the toy projectile apparatus according to the present invention, illustrating a wearable housing assembly with Spiderman indicia and a user releasing the safety mechanism and applying a Spiderman iconic palm up flip of the wrist move to shoot a projectile from a projectile receiving assemblage;

FIG. **2**B illustrates a safety mechanism for preventing advancing/shifting an actuator movement mass, until shooting the projectile is desired by the user; while FIG. **2**C illustrates a launching and priming mechanism sub-assembly and an actuator movement mass/sub-housing with a release point element movable with the mass and a trigger linkage pivotably secured to the housing assembly;

FIG. **3**A is a perspective view of an alternative embodiment of the toy projectile apparatus according to the present invention, illustrating a wearable housing assembly with Black Panther indicia and a user applying a Black Panther Power cat like paw swipe move to shoot a projectile from a projectile receiving assemblage;

FIG. **3**B illustrates a safety mechanism at a rail/handle housing latched to an actuator mass within the wearable housing for preventing advancing/shifting of the actuator movement mass until shooting the projectile is desired by the user;

FIG. **3**C illustrates a launching and priming mechanism sub-assembly and an actuator movement mass and release point trigger release mechanism within the housing assembly, including a release point element movable with the mass and two trigger linkages, one pivotably secured to the housing assembly and the other latching a plunger to retain the launching mechanism in a primed position, while FIG. **3**D illustrates a sub-housing assembly containing the actuator movement mass and advancing along a defined path with an affixed release point element;

FIG. **4**A is a perspective view of an alternative embodiment of the toy projectile apparatus according to the present invention, illustrating a wearable housing assembly with Captain America indicia and a user applying a Captain America Power frisbee like flick of the arm disc throw move to shoot a projectile from a projectile receiving assemblage;

FIG. **4**B illustrates a safety mechanism at a rail/handle housing latched to an actuator mass within the wearable housing for preventing advancing/shifting of the actuator movement mass until shooting the projectile is desired by the; while FIG. **4**C illustrates a launching and priming mechanism sub-assembly and an actuator movement mass/sub-housing with a trigger element movable with the mass and a release point element secured to a pin which is spring biased toward the priming mechanism for retaining the launching mechanism in a primed position;

FIG. **5**A is a perspective view of an alternative embodiment of the toy projectile apparatus according to the present invention, illustrating a hand held housing assembly with Thor indicia and a user releasing the safety mechanism and applying a Thor Power hand held hammer/chop move to shoot a projectile from a projectile receiving assemblage, while FIGS. **5**B & **5**C illustrate a safety mechanism for preventing advancing/shifting an actuator movement mass, until shooting the projectile is desired by the user;

FIG. **5**D illustrates a launching and priming mechanism sub-assembly and an actuator movement mass/sub-housing with a release point element movable with the mass and two trigger linkages, one pivotably secured to the housing assembly, and the other one latching a plunger to retain the launching mechanism in a primed position.

DETAILED DESCRIPTION OF THE EMBODIMENTS

The following description is provided to enable those skilled in the art to make and use the described embodiments set forth in the best modes contemplated for carrying out the invention. Various modifications, however, will remain readily apparent to those skilled in the art. Any and all such modifications, equivalents, and alternatives are intended to fall within the spirit and scope of the present invention.

A toy projectile apparatus **10**, as seen in FIGS. **1**A-**1**D, is generally a wearable or hand held projectile blaster employing an inertia trigger mechanism which utilizes an actuator movement mass to trip an internal trigger mechanism which is selectively activated to shoot a projectile when the toy apparatus experiences a certain acceleration. At least one safety mechanism engages the actuator movement mass and must be released by a user to allow advancement/shifting of the actuator movement mass in order to trip the internal trigger mechanism.

A housing assembly **12** supports at least one projectile receiving assemblage **14** with a projectile **16** movably deployed within each assemblage. A launching mechanism **18** is disposed adjacent the projectile receiving assemblage and is charged/primed by a priming mechanism **20** which manually engages and primes the launching mechanism. A release point trigger release mechanism **22** is disposed within the housing and includes one or more trigger linkages and a release point element. The release point trigger release mechanism engages the launching mechanism and cooperates with an actuator movement mass **24** which is deployed at the housing and selectively activated through a certain acceleration to trip the release point trigger release mechanism and shoot the projectile from the assemblage.

The actuator movement mass is selectively activated through a particular movement of the toy projectile apparatus to activate the inertia trigger mechanism for shooting the projectile when the apparatus experiences a certain acceleration, as discussed above. "Power moves," of the toy projectile apparatuses by the user, provides the particular force and direction needed to advance/shift/move the actuator movement mass to trip the inertia trigger mechanism. "Power move" include iconic or signature moves seen to be performed by many known superhero's and include moves which users perform to imitate specific superheroes as they engage in role play and perform gestures or animations meant to imitate a particular superhero during play.

For example, a Captain Marvel superhero inspired toy projectile apparatus, as seen in FIG. **1**A, would require a user to perform a punching motion when wearing the Captain Marvel projectile apparatus in order to advance the actuator movement mass and shoot the projectile. The punching motion is a "Power move" of Captain Marvel and the outer housing design and embellishment of the Captain Marvel projectile apparatus suggests to the user that the "Power move" to be performed would be a punching motion.

Additionally, alternative toy projectile apparatuses inspired by other superheroes include alternative outer housing assembly designs and embellishments, some with wearable component and some including hand held housing assemblies, but each inspired by and indicating a particular superhero. The look of the outer housing assembly of each also suggests a "Power move" by the corresponding superhero, to be performed by the user in order to shoot projectiles from the apparatus. For example, a Spiderman inspired toy projectile apparatus would suggest a palm up flip of the wrist "Power move" to shoot projectiles, a Black Panther inspired toy projectile apparatus would suggest a cat like paw swipe "Power move" to shoot projectiles, a Captain America inspired toy projectile apparatus suggesting a frisbee like flick of the arm disc throw and/or punch "Power move" to shoot projectiles, and a Thor inspired toy projectile apparatus would suggest a hand held hammer swing motion "Power move" to shoot projectiles. It is also contemplated that various other superhero inspired toy projectile apparatuses could be included.

The housing assembly **12**, as seen in FIG. **1**A, includes a wearable component **26**, and a hand held rail/handle housing **27** generally comprised of a durable plastic material with the wearable component worn on the back of the hand of a user, with the user gripping the rail. A flexible strap **28** is included to secure the wearable component to the wrist/arm of the user. The strap (as well as the housing assembly itself) may also provide means for securing extra projectiles for future use. In the present described embodiment, an outer portion **12***a* of the housing assembly **12** is shaped and embellished to resemble equipment used and worn by superhero Caption Marvel, with body armor hand protector plates at the fingers and knuckles and fantasy flame embellishments for a battling effect. Additionally, the look of the outer housing portion **12***a* suggests a punch "Power move" to be performed by the user to shoot the projectile, as demonstrated by the arrow as shown in FIG. **1**A.

At least one projectile receiving assemblage **14** is disposed at the housing assembly **12**. The projectile receiving assemblage **14** is shaped and sized to fit a particular projectile size and shape used with any of the desired projectile apparatuses. For example, a cylindrical dart or disc shaped dart, will dictate the size and shape of the projectile assemblage used with a desired projectile apparatus. In the present described embodiment, as seen in FIGS. **1**A-**1**D, the projectile receiving assemblage **14** is cylindrical in shape to receive a cylindrical dart projectile **16** which is movably deployed within the cylindrical chamber/barrel/assemblage **30**. The assemblage **30** is secured to the housing and held in place when engaging the launching mechanism for shooting the dart **16** which is movably deployed within the assemblage.

The launching mechanism **18** is disposed adjacent the projectile assemblage for launching the projectile from the projectile receiving assemblage. In the present described embodiment, as seen in FIGS. **1**B & **1**C, the launching mechanism generally includes a piston **32** and compression launch spring **34** housed within a cylinder **36**, such that when the dart is launched, the air above the piston **32** in the cylinder **36** quickly enters the assemblage **30** behind the dart to cause shooting. It is also contemplated that the launching mechanism can include an electrically initiated plunger mechanism which advances projectiles into spinning flywheels to be shot from a toy projectile apparatus.

The priming mechanism **20** engages the launching mechanism **18** for manual charging/priming of the launching mechanism. The launching & priming mechanisms together form a sub-assembly that moves, with respect to the housing assembly, between a primed and discharged position. In the present described embodiment, as seen in FIG. **1**C, the priming mechanism includes a plunger rod **38** affixed to the piston **32** and includes a grip portion **40** disposed at the plunger rod at an end of the rod opposite the piston. The piston **32** is movable with respect to the cylinder **36**, and housing assembly **12**, and is drawn away from the assemblage/chamber **30** when primed. The grip is pulled by the user drawing the plunger and affixed piston away from the assemblage and compressing the spring as the piston is temporarily latched to a primed/charged position.

A release point trigger release mechanism **22** is disposed within the housing assembly and engaging the launching assembly to temporarily latch the launching assembly to a primed/charged position. The release point trigger release mechanism includes one or more trigger linkages and a release point element. In the present described embodiment, as seen in FIG. **1**C, the release point trigger release mechanism includes a protrusion release point element **42** affixed to the housing assembly and an internal trigger linkage **44** disposed within the housing assembly adjacent the launching mechanism for engaging the piston of the launching mechanism.

The protrusion **42** is generally a small tringle shaped block affixed to, or integral with, a bottom plate **13** of the housing assembly. The trigger linkage **44** is a long slim linkage with a first surface **44***a* at an end of the trigger linkage shaped to engage the protrusion. The trigger linkage **44** has a second surface **44***b*, at an end of the trigger linkage opposite the first surface **44***a*, which is shaped to latch onto a ring catch surface **32***a* of the piston for latching the piston to a primed/charged position.

The trigger linkage pivots at a pivot point **46** such that only one of the first surface or the second surface is capable of engaging it's corresponding protrusion or catch surface, respectfully, at a time. The trigger linkage latches the piston to a primed position until the trigger is released in which the trigger linkage is slid into the protrusion which will link the second surface of the trigger linkage with protrusion and pivot the first surface away from the piston catch to rapidly release the piston. The trigger linkage **44** is pivotably connected to move with the actuator movement mass for engaging the launching mechanism until actuated by selective movement of the actuator movement mass.

The actuator movement mass **24**, as seen in FIG. **1**D, is deployed at the housing assembly and engaging the release point trigger release mechanism. The actuator mass is selectively activated through a certain acceleration to trip the release point trigger and shoot the projectile from the projectile receiving assemblage. The actuator movement mass is generally a weight contained within a sub-housing **15** which links to the trigger release mechanism and is movably deployable with respect to the housing. The sub-housing rests on a bracket **46** which guides the sub-housing as it moves back and forth. A pair of pins **48** attach the bracket to the housing assembly and the pins ride along a

pair of channels **50** in a rear portion **24** of the sub-housing. In the present described embodiment, the channels **50** provide a defined path in which the sub-housing (which is the actuator movement mass in the present described embodiment) travels with respect to the housing assembly for secure and rapid advancing/shifting between a nonactive position and an active position for shooting projectiles from the toy projectile apparatus.

The actuator movement mass is a weight of a particular size, weight and shape that fits mostly within the parameters of the housing assembly, sufficient to easily advance/shift from a certain acceleration applied to the apparatus. The Actuator movement mass is generally contained within a sub-housing that is disposed to shift with respect to the housing assembly, and alternatively the actuator movement mass can include only the sub-housing and/or be entirely disposed outside the housing assembly. In the present described embodiment, the actuator movement mass includes just the sub-housing **15** which is substantial enough to provide the rapid shift of weight within the housing assembly to trip the release point trigger release mechanism and shoot the projectile. Alternatively, if desired, a weight can be contained within the sub-housing.

In the present described embodiment, the internal trigger linkage **44** is pivotably connected to sub-housing **15** to slide as the actuator movement mass. The trigger linkage engages the launching mechanism until actuated by selective movement of the actuator movement mass. In operation, the second surface of the trigger linkage engages the ring catch surface of the piston when the launching mechanism is primed. Selective movement of the actuator movement mass from a "Power punching move" by the user shifts the mass and connected trigger linkage toward the protrusion until the first surface of the trigger linkage fully engages the protrusion and comes to a rest on top of the triangular protrusion. As the first surface **44***a* of the trigger linkage engages the protrusion, the trigger linkage is pivoted at the pivot point **46** shifting the second surface **44***b* of the trigger linkage away from engagement with the catch of the piston to release the primed piston to shoot the projectile from the toy projectile apparatus. After shooting the projectile, the actuator movement mass is returned to an inactive/unadvanced/unshifted position by the priming mechanism, when the launching mechanism is once again primed, as the priming mechanism mechanically engages the mass though one or more linkages/sub-housing.

As discussed above, a force applied to the toy projectile apparatus can include a punch, swipe, fling, chop, or other move, etc, of the user's hand/arm while wearing or holding the projectile apparatus. As the force is applied, the weighted mass, based on inertia, will advance/shift/move toward (either the trigger linkage or the release point element, depending on the embodiment) to trip the release point trigger release mechanism and thus use inertia to shoot the projectile. In the present described embodiment, as seen in FIGS. **1**A-**1**D, the force applied is a punch "Power move" advancing the actuator movement mass with pivotably connected trigger linkage toward the protrusion release point element **42** to shoot projectiles from the toy projectile apparatus **10**. The punching Power move provides enough acceleration to activate the inertia trigger mechanism. Other Power moves, inspired by other superhero wearable and hand held blasters are discussed in detail below.

A safety mechanism engages the actuator movement mass to prevent advancing/shifting of the mass to actuate the trigger and shoot the projectile, unless desired by the user. As described above, the safety mechanism must be released by the user in order to free the actuator movement mass and/or sub-housing assembly to advance/shift for shooting the projectiles. The safety mechanism includes one or more linkage assemblies latching the actuator movement mass and/or sub-assembly to one or more safety buttons accessible to the user for depressing and holding in order to release the safety mechanism from the mass and allow the apparatus to shoot the projectile. The safety button mechanically engages the one or more linkages between the button and the actuator movement mass to enable the safety button to be easily and logically accessible to the user when wearing or gripping the toy projectile apparatus. The safety button is spring loaded and biased to a position that engages the actuator movement mass preventing it from shifting and shooting the projectile. Depressing the one or more safety buttons releases the safety mechanism from engagement with the actuator movement mass allowing the mass to shift and actuate the toy projectile apparatus to shoot the projectile.

In the present described embodiment, as seen in FIG. **1**B, a safety button **54** is disposed on either/both sides of the rail element **27**. The buttons are easily depressed by the thumb of either the users right and/or left hand as the user grips the rail with each hand in use. A first linkage **56** runs through the rail element and connects the safety buttons to a second linkage **58** which is disposed on a fixed track in the housing assembly **12**. A third linkage **60** mechanically engages the second linkage within the housing assembly and includes a latch element **62** for engaging the actuator movement mass at the sub-housing.

In operation, when either safety button **54** in depressed, the first linkage shifts causing the second linkage to move upward toward the third linkage and press on the third linkage causing it to rotate counter-clockwise, as seen with the arrows included in FIG. **1**B. Rotation of the third linkage will pull the latch element **62** out of the way of the sub-housing/actuator movement mass freeing the mass to shift along the channels **50** if a force with a certain acceleration is applied, such as a punch motion as described above. When the safety buttons **54** are released, the spring loaded button will pull away from the rail, reversing the linkage movement and a small arm **64** on the third linkage will force the third linkage clockwise and reinstate the latch element **62** to prevent the actuator movement mass from freely advancing.

As described above, the toy projectile apparatus **10** includes a housing assembly **12** which can includes a wearable outer housing or a hand held outer housing assembly. The wearable outer housing can include a hand portion or glove element with or without a strap element for securing the apparatus to a hand, wrist or arm of the user, or alternatively, the outer housing may include a handle for gripping the apparatus in a lateral or vertical position.

The wearable outer housing assembly and/or the hand held outer housing assembly is shaped and embellished to resemble equipment used and worn by a superhero such as Captain Marvel, as discussed above in FIGS. **1**A-**1**D, or alternative superhero's as discussed in detail below. Alternative embodiments of the toy projectile apparatus includes housing shapes and embellishments to resemble equipment used and worn by superhero's such as Spiderman, Black Panther, Captain America, and Thor, etc, as well as modified launching & priming mechanisms and release point trigger release mechanisms, but the inertia trigger driven by an advancing/shifting actuator movement mass remains a constant and novel structure in all the toy projectile apparatus embodiments.

In an alternative toy projectile apparatus embodiment **100**, as seen in FIGS. **2**A-**2**C, a housing assembly **110** is generally comprised of a durable plastic with a wearable component designed to fit in the palm of a user's hand and secure to the users wrist with a strap **112**. The outer housing portion **110***a* of the housing assembly is shaped and embellished to resemble equipment worn and used by a superhero such as Spiderman, with the web graphics and spider shaped handle for charging the launching mechanism, as well as the manner in which the apparatus is positioned on the wrist and palm of the user suggesting a flip of the wrist/arm "Power move", with the palm facing up, to apply the appropriate force and direction of acceleration needed to trip the inertia trigger in the present described alternative toy projectile apparatus **100**.

Three projectile receiving assemblages **114** are disposed at the housing assembly and are cylindrically shaped to fit the cylindrical darts **116** which are movably deployed within each projectile receiving assemblage. A launching mechanism **117**, generally similar to the launching mechanism as described above for the toy projectile apparatus **10**, includes a piston **118** and a compression launch spring **120** housed within a cylinder **122**, such that when one or more of the darts are launched, the air above the piston **118** in the cylinder **122** quickly enters the projectile receiving assemblages **114** behind the one or more darts to cause shooting of the darts.

A priming mechanism **124** engages the launching mechanism **117** for manual charging/priming of the launching mechanism. The launching and priming mechanisms together form a sub-assembly that moves with respect to the housing assembly between a primed and discharged position. The priming mechanism, as seen in FIGS. **2**A & **2**B, includes a spider shaped handle **126** connected to a linkage **128** which mechanically engages the plunger **130** that is affixed to the piston **118**. The user pulls back on the handle **126**, drawing the plunger and affixed piston away from the projectile receiving assemblages and compressing the spring **120** as the piston is temporarily latched to a primed/charged position.

A release point trigger release mechanism further includes one or more trigger linkages pivotably affixed within the housing assembly for engaging the launching mechanism and a release point element disposed within the housing assembly and connected to move with an actuator movement mass when the apparatus experiences a certain acceleration. In the present described alternative embodiment, a release point trigger release mechanism **128** is disposed within the housing assembly adjacent the cylinder **122** and engaging the launching assembly **117** to temporarily latch the launching assembly to a primed/charged position. In the present described alternative embodiment, the release point trigger release mechanism **128**, as seen in FIG. **2**C, includes a trigger linkage **131**, pivotably secured to the housing assembly and a release point post element **132**. The release point post **132** is affixed to a sub-housing assembly **134** that houses an actuator movement mass **136**. The post **132** shifts with the sub-housing assembly when the sub-housing is shifted by the actuator movement mass.

The actuator movement mass is housed in the sub-housing assembly **134** in a protruded portion **134***a*, as seen in FIG. **2**B. The sub-housing assembly is designed to contain the actuator movement mass and travel as a unit back and forth within the housing along the cylinder. An extended portion **134***b* of the sub-housing assembly, as seen in FIG. **2**C, envelopes a portion of the cylinder and is affixed to the release point post **132**, disposing the post adjacent the trigger linkage **131**. The trigger linkage **131** includes an L shaped end **131***a* which extends through an aperture **138** in the cylinder for engaging a ring catch surface **118***a* of the piston when the launching mechanism/piston is in a primed position.

A safety mechanism **141**, as seen in FIG. **2**B, of the present described alternative embodiment, includes a spring biased safety button **142** disposed at a front end **100***a* of the apparatus **100** and easily depressed and held by the two middle fingers of the user as a Spiderman flip "Power move" is performed. A first linkage **144** extends the length of the apparatus and engages a second linkage **146** which mechanically engages the sub-housing **134** and prevents the actuator movement mass **136** from advancing to trip the release point trigger release mechanism until the user is ready to shoot projectiles from the apparatus.

In operation, the user will hold the safety button depressed before and during performance of the "Power move" which will shift the second linkage away **146** away from the sub-housing and allow the actuator movement mass to advance. Selective movement of the actuator movement mass with a "Power move" by the user shifts the mass and affixed release point post **132** toward an arm **140** of the trigger linkage at an end of the trigger opposite the L shaped end **131***a*, to pivot the L shaped end away from engagement with the piston to shoot the projectiles **116**. The "Power move" used to activate the inertia trigger mechanism for the present described alternative apparatus **100**, is a flip of the wrist movement, as shown in FIG. **2**A, which provides the appropriate acceleration to advance the actuator movement mass **136** and trip the release point trigger release mechanism and shoot the projectiles. After shooting the projectile, the spring biased safety button is released, the second linkage **146** will automatically re-engage the sub-housing and the actuator movement mass is returned to an inactive/unadvanced/unshifted position by the priming mechanism, when the launching mechanism is once again primed, as the priming mechanism mechanically engages the mass though one or more linkages/sub-housing.

In another alternative toy projectile apparatus embodiment **200**, as seen in FIGS. **3**A-**3**C, a housing assembly **210** is generally comprised of a durable plastic with a wearable component designed like a glove to fit over the back of a user's hand and includes a rail **211** for the user to grip. An outer housing portion **210***a* of the housing assembly, as seen in FIG. **3**A, is shaped and embellished to resemble equipment worn and used by a superhero Black Panther, with a cat like paw and claws **212** extending from the finger portions of the housing assembly, which suggests a user will swipe forward in a cat like paw swipe "Power move" in order to apply the appropriate force and direction of acceleration needed to trip the inertia trigger in the present described alternative toy projectile apparatus.

Two projectile receiving assemblages **214** are disposed at the housing assembly and are cylindrically shaped to fit the cylindrical darts **216** which are movably deployed within each projectile receiving assemblage. A launching mechanism **218**, generally similar to the launching mechanism as described above for the present described embodiments **10** and **100**, includes a piston **220** and a compression launch spring (not shown) but housed within a cylinder **224**, such that when one or more of the darts are launched, the air above the piston **220** in the cylinder **224** quickly enters the projectile receiving assemblages **214** behind the one or more darts to cause firing of the darts.

A priming mechanism **226** engages the launching mechanism **218** for manual charging/priming of the launching

mechanism. The launching and priming mechanisms together form a sub-assembly that moves with respect to the housing assembly between a primed and discharged position. The priming mechanism, as seen in FIGS. **3**B-**3**D, includes a three prong claw shaped handle **228** connected to a linkage **230** which mechanically engages a plunger **232** that is affixed to the piston **220**. The user pulls back on the claw handle **228**, drawing the plunger and affixed piston away from the projectile receiving assemblages and compressing the spring as the piston is temporarily latched to a primed/charged position.

In the present described alternative embodiment, as seen in FIGS. **3**C & **3**D, a release point trigger release mechanism **234** is disposed within the housing assembly and includes a first trigger linkage **236** pivotably connected to the housing assembly at pivot point **238**, and a second trigger linkage **240** engaging the first trigger linkage at a first end **240***a* and engaging the plunger **232** at a second end **240***b*, and a release point post **222** affixed to a sub-housing **242** disposed within the housing assembly and containing an actuator movement mass **244**. The second trigger linkage **240** includes an aperture **246** through which the plunger can traverse and a squared off protrusion **248** at and inside surface **246***a* of the aperture, which operates to engage a squared off notch **250** in the plunger, as seen in FIG. **3**C. The second trigger linkage **240** is spring biased at post **241** toward the first trigger linkage. The protrusion **248** of the second trigger linkage **240** engages the notch **250** of the plunger when the launching mechanism (piston & plunger) is manually pulled to a primed position, biasing together the connection between the protrusion **248** and notch **250** with the spring at post **241**.

A safety mechanism **252**, as seen in FIG. **3**B, engages the actuator movement mass **244** at the sub-housing, to prevent advancement of the mass and actuation of the inertia trigger mechanism until the user is ready to shoot projectiles from the apparatus. The safety mechanism must be released for the actuator movement mass to advance. The safety mechanism includes a pair of safety buttons **254** with a first linkage **255** therebetween mechanically engaging the safety buttons, and a second linkage **256** mechanically engaging the first linkage, and a third linkage **257** mechanically engaging the sub-housing and/or actuator movement mass. The safety buttons **254** are disposed on either side of the rail **211** of the housing assembly and are easily and logically accessible to the user when gripping the rail with either the right or left hand. The safety buttons **254** are spring loaded and biased to the locked position, which prevents the actuator mass from advancing.

In operation, the user depresses and holds one of the safety buttons with a thumb most likely, releasing the safety mechanism by shifting the first linkage to lift the second linkage toward the third linkage and pivot an L shaped end **257***a*, away from engagement with the sub-housing and/or actuator movement mass, freeing the mass to advance when a force with certain acceleration is applied, such as a cat like paw swipe, as discussed above. Selective movement of the actuator movement mass from a "Power move" including a paw swipe motion by the user, shifts the mass and affixed release point post **222** toward a first end **236***a* of the first trigger linkage **236**, pivoting the second end **236***b* of the first trigger linkage toward the second trigger linkage **240** and shifting the second trigger linkage against the spring bias, such that the protrusion **248** disengages from the notch **250** to quickly release the plunger and attached piston shooting projectiles from the apparatus. After shooting the projectile, the actuator movement mass is returned to an inactive/unadvanced/unshifted position by the priming mechanism, when the launching mechanism is once again primed, as the priming mechanism mechanically engages the mass though one or more linkages **243** affixed to the sub-housing **242**. The safety buttons are then released, and the spring loaded buttons will pull away from the linkage assemblies, pivoting the L shaped end **257***a* back into engagement with the sub-assembly/actuator movement mass, preventing the mass from freely advancing.

In another alternative toy projectile apparatus embodiment **300**, as seen in FIGS. **4**A-**4**C, a housing assembly **310** includes a wearable component and a hand held rail **314** generally comprised of a durable plastic material with the wearable component worn on the back of the hand of a user with the user gripping the rail. An outer housing portion **310***a* of the housing assembly is shaped and embellished to resemble equipment used and worn by a superhero Captain America, with a disc/shield projectile **316** resembling a shield and including Captain America's Power star, and body armor knuckle protectors for a battling effect. The look and design of the outer housing portion suggests a "Power move" of frisbee like flick of the arm disc throw, as seen in FIG. **4**A and demonstrated with the arrow as shown, in order to apply the appropriate force and direction of acceleration needed to trip the inertia trigger in the present described alternative toy projectile apparatus embodiment **300**. Additionally, a punch "Power move" can also be performed to apply the appropriate force and direction of acceleration needed to advance the actuator movement mass of the apparatus.

A projectile receiving assemblage **318** is disposed at the housing assembly **310** and is crescent shaped to receive the disc shaped projectile **316**. The crescent shaped projectile receiving assemblage utilizes clips **320** and friction to retains the disc projectile, as seen in FIG. **4**C. A launching mechanism **322** is disposed adjacent the projectile receiving assemblage **318** for launching the projectile from the assemblage. In the present alternative embodiment **300**, the launching mechanism generally includes a torsion spring **324** within a sub-housing launching assembly **326** topped by a cap **328** for ease in winding the torsion spring/launching mechanism to a primed position. The user grips the cap of the sub-housing launching assembly and rotates the assembly clockwise until the torsion spring is wound to a primed position.

A release point trigger release mechanism **330** is disposed within the housing assembly and engaging the launch assembly to temporarily latch the launching assembly to a primed/charged position. The release point trigger release mechanism includes a pin element **332** affixed to the housing assembly and spring biased to a catch position, as seen in FIG. **4**C, disposed through an aperture **334** in the sub-housing of the launching mechanism. The pin element **332** includes a release point element **336** affixed to the pin and includes an angled surface **336***a*. The release point trigger release mechanism also includes a short trigger linkage **338** affixed to a sub-housing **340** AVN Signature Moves FIGS. **1**-**741** which contains an actuator movement mass. **342**. The short trigger linkage includes a diagonal contacting surface **338***a* for contacting the angled surface **336***a* of the release point element **336**. When the actuator movement mass is advanced, the trigger is slid over the release point element, depressing the pin **332**, and shifting the pin away from the sub-housing launching assembly **326**.

The actuator movement mass **342** is deployed at the housing assembly and engages the release point trigger mechanism **330**, as described above. The actuator mass is

selectively activated through a certain acceleration to trip the release point trigger release mechanism and fling the shield projectile from the apparatus. The actuator movement mass is a weight generally housed within the sub-housing **340** which affixes the short trigger linkage **338** and is moveable with the affixed trigger linkage **338** with respect to the housing assembly **310**.

A safety mechanism **348**, as seen in FIG. **4**B, engages the actuator movement mass at the sub-housing **340** to prevent advancement of the mass to actuate the trigger and shoot the disc shield projectile until desired by the user. The safety mechanism **348** includes three linkage assemblies latching the actuator mass/sub-housing to a pair of safety buttons. The safety buttons **350** are disposed on either side of the rail **314** of the housing assembly and are easily and logically accessible to the user when gripping the rail with either the right or left hand. The safety buttons are spring loaded and biased to the locked position, which prevents the actuator mass from advancing.

In operation, the user depresses and holds one of the safety buttons, with a thumb most likely, releasing the safety mechanism by shifting the first linkage **352**, which is disposed between the two safety buttons, to shift the second linkage **354** up toward the third linkage **356** which is pivoted away from engagement with the actuator mass/sub-housing. The third linkage **356** includes an L shaped end **356***a*, which is pivoted away from the actuator mass/sub-housing when the safety mechanism is held in an unlocked position, freeing the mass to advance when a force with a certain acceleration is applied, such as a flinging motion, as discussed above.

The actuator mass/sub-housing **340** rides along a track **346** when the selective movement of the actuator movement mass is advanced by a "Power move" by the user to fling the apparatus forward and advance the actuator mass/sub-housing and connected trigger linkage toward the release point **336** until the diagonal contacting surface of the trigger linkage contacts the release point and depresses the pin element to release the primed torsion spring and shoot the shield projectile. After shooting the shield projectile, the safety buttons are released and the spring loaded buttons will pull away from the linkage assembly, pivoting the L shaped end **356***a* back into engagement with the actuator movement mass/sub-assembly, preventing the mass from freely advancing. The actuator movement mass is returned to an inactive/unadvanced/unshifted position by the priming mechanism, when the launching mechanism is once again primed, as the priming mechanism mechanically engages the mass though one or more linkages affixed to the sub-housing **340**.

In another alternative toy projectile apparatus embodiment, **400**, as seen in FIGS. **5**A-**5**D, a housing assembly **410** is generally comprised of a durable plastic material and includes a handle component **412**. An outer housing portion **410***a* of the housing assembly is shaped and embellished to resemble equipment used by superhero Thor, with a hammer configuration appearing to have a very heavy hammer head. The look and design of the outer housing portion suggests a Thor "Power move" of a hand held hammer swing motion, as seen in FIG. **5**A and demonstrated with the arrow as shown, in order to apply the appropriate force and direction of acceleration needed to trip the inertia trigger in the present described alternative toy projectile apparatus embodiment **400**.

A projectile receiving assemblage **414** is disposed at the housing assembly **410** and is cylindrically shaped to fit a cylindrical dart **416** which is movably deployed within the projectile receiving assemblage. The projectile receiving assemblage frictionally retains the projectile **416**. A launching mechanism **418** is disposed adjacent the projectile receiving assemblage **414** for launching the projectile from the assemblage. The launching mechanism is generally similar to the launching mechanism as described above for the present described embodiment **10**, and includes a piston and a compression launch spring housed within a cylinder **420**, such that when the dart is launched, the air above the piston in the cylinder **420** quickly enters the projectile receiving assemblages **414** behind the dart to cause shooting of the dart.

A priming mechanism **422** engages the launching mechanism **418** for manual charging/priming of the launching mechanism. The launching and priming mechanisms together form a sub-assembly that moves with respect to the housing assembly between a primed and discharged position. The priming mechanism, as seen in FIG. **5**D, includes a rounded grip **424** at an end of the handle **412** opposite a hammer head portion **426** and connects through a linkage **427** to a plunger **428** that is affixed to the piston (not shown). The user pulls back on the grip **424**, drawing the plunger and affixed piston away from the projectile receiving assemblage and compressing the spring as the piston is temporarily latched to a primed/charged position.

As seen in FIG. **5**D, a release point trigger release mechanism **430** is disposed within the housing assembly and cooperates with an actuator movement mass **450** to shoot the projectile. The release point trigger release mechanism includes a first trigger linkage **432** pivotably affixed to the housing assembly at pivot point **434**, and a second trigger linkage **436** engaging the first trigger linkage at a first end **436***a* and engaging the plunger **428** at a second end **436***b*. A spring **438** biases the second trigger linkage toward the first trigger linkage. The release point trigger release mechanism further includes a release point element **339** disposed within the handle portion **412** of the housing assembly and connected through a long linkage **437** to move with the actuator movement mass **450**. The long linkage **437** includes a triangular head element **439** which will ride along angled ridges **451** of the actuator movement mass to pivot the first trigger linkage **432** and shoot the projectile.

The second trigger linkage **436** includes an aperture **440** in which the plunger can traverse and a squared off protrusion (not shown but same as protrusion **248** in FIG. **3**C) at an inside surface of the aperture which operates to engage a squared off notch (not shown but same as notch **250** in FIG. **3**C) in the plunger. The squared off protrusion of the second trigger linkage engages the notch of the plunger when the launching mechanism (piston & plunger) is manually pulled to a primed position. Also, the spring **438** biases the squared off protrusion of the second linkage **436** against the squared off notch of the plunger creating a secure coupling.

A safety mechanism **442**, as seen in FIGS. **5**B & **5**C, includes a ball **444** and channel **446** configuration for preventing movement of an actuator movement mass **450** until the apparatus is aligned in such a position as to allow the ball to roll into a dip **448** in the channel and free the mass to shift allowing the apparatus to shoot the projectile when desired by the user. The actuator movement mass **450** is contained within a sub-housing assembly **452** and shifts laterally within the sub-housing assembly as seen in FIGS. **5**B-**5**D. The mass **450** is held toward the center of the housing assembly through engagement with the triangular head element **439** of the long linkage **437**. The space on either side of the centered mass **450** defines the channels **446**, into one of which, the mass will traverse when the user

swings the apparatus with a certain force in a specific manner, a shown with arrows, in FIG. **5**A.

In operation, selective movement of the toy projectile apparatus **400**, from a "Power move" including a hammer swing by the user, shifts the safety mechanism to release the actuator movement mass by first rolling both balls **444** along the channels **446** toward the dips **446** in the channels as the hammer head is lowered beneath or to the level of the hammer handle, as seen by the upper arrow as demonstrated in FIGS. **5**A & **5**C. As the user swings the hammer head back up, as seen and demonstrated by the lower arrow in FIGS. **5**A &**5**C, the ball **444** in the channel disposed upward of the actuator movement mass, will drop into the adjacent dip as the hammer head is swung upward. The toy projectile apparatus **400** will shoot the dart at this later upward movement of the hammer head as demonstrated by the lower arrow in FIG. **5**A.

The removal of the ball into the dip will allow the actuator movement mass **450** to shift toward the now empty channel, as seen in FIG. **5**C. Shifting of the actuator movement mass will advance the triangular head element **439** further into the mass sub-housing as the head element rides along the ridge **451** of the mass when the mass shifts. The long linkage **437** affixed to the head element is also advanced with the head element and the affixed release point element **339** is advanced over the first trigger linkage **432**, pivoting the first trigger linkage. The pivoted first trigger linkage shifts the second trigger linkage **436** against the spring bias **438** such that the protrusion within the aperture of the second trigger linkage disengages from the notch in the plunger to quickly release the plunger and attached piston shooting the projectile from the apparatus.

A second safety mechanism **456**, as seen in FIG. **5**D, engages the release point element in order to prevent the element **339**, long linkage **437** and triangular head element **439** from advancing and thus preventing the actuator movement mass **450** from shifting at the sub-housing, preventing actuation of the inertia trigger mechanism until the user is ready to shoot the projectile from the apparatus. The second safety mechanism includes a spring loaded safety button with a linkage (not shown) mechanically engaging the safety button and release point element. The safety button **458** is disposed in the handle **412** of the apparatus and is easily and logically accessible to the user when gripping the handle.

The user depresses and holds the safety button, most likely with the palm of the user's hand when gripping the handle, releasing the safety mechanism by shifting the linkage away from engagement with the release point element, freeing the element, long linkage and triangular head element to advance toward the sub-housing of the actuator movement mass **450** when a force with a certain acceleration is applied, such as a hammer swing, as discussed above. When the safety button is released, the spring loaded buttons once again prevent the release point element from advancing and shooting a projectile from the apparatus **400**.

A method for shooting a projectile from a toy projectile apparatus, including the steps of: providing a housing assembly having at least one projectile receiving assemblage, loading a movably deployable projectile into the projectile receiving assemblage, providing a launching mechanism adjacent the projectile receiving assemblage for launching the projectile from the assemblage. Manually priming the launching mechanism with a priming mechanism, engaging the launching mechanism with a release point trigger release mechanism disposed within the housing assembly, and providing an actuator movement mass deployed at the housing assembly and engaging the release point trigger release mechanism, selectively activating the actuator movement mass through a certain acceleration to trip the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage.

What is claimed is:

1. A toy projectile apparatus, comprising:

a housing assembly having at least one projectile receiving assemblage;

a projectile which is movably deployed within the projectile receiving assemblage;

a launching mechanism adjacent the projectile receiving assemblage for launching the projectile from the assemblage;

a priming mechanism engaging the launching mechanism for manual priming of the launching mechanism;

a release point trigger release mechanism disposed within the housing assembly and engaging the launching mechanism;

an actuator movement mass deployed by a user through a rapid acceleration applied to the housing assembly to advance the actuator movement mass to the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage; and

a safety mechanism that maintains the actuator movement mass in an unadvanced position away from the release point trigger release mechanism when the priming mechanism engages the launching mechanism in a primed position to prevent the release point trigger release mechanism from activating the launching mechanism until desired by the user.

2. The toy projectile apparatus according to claim **1**, wherein the actuator movement mass is deployed at the housing assembly with the safety mechanism to prevent activation of the release point trigger release mechanism.

3. The toy projectile apparatus according to claim **2**, wherein the actuator movement mass is disposed outside of the housing assembly.

4. The toy projectile apparatus according to claim **2**, wherein the safety mechanism further comprises one or more linkage assemblies latching the actuator movement mass to one or more safety buttons accessible to a user for depressing and holding to release the safety mechanism from the mass and allowing the apparatus to shoot the projectile.

5. The toy projectile apparatus according to claim **1**, wherein the actuator movement mass is selectively activated through the rapid acceleration to trip the release point trigger release mechanism.

6. The toy projectile apparatus according to claim **5**, further comprising a wearable outer housing assembly for securing the housing to the user for the rapid acceleration of the apparatus by the user.

7. The toy projectile apparatus according to claim **1**, wherein the safety mechanism locks the actuator movement mass in the unadvanced position away from the release point trigger release mechanism.

8. A toy projectile apparatus comprising:

a housing assembly having at least one projectile receiving assemblage;

a projectile which is movably deployed within the projectile receiving assemblage;

a launching mechanism adjacent the projectile receiving assemblage for launching the projectile from the assemblage;

a priming mechanism engaging the launching mechanism for manual priming of the launching mechanism;

a release point trigger release mechanism disposed within the housing assembly and engaging the launching mechanism; and

an actuator movement mass maintained at the housing assembly in an unadvanced position away from the release point trigger release mechanism, preventing engaging of the release point trigger release mechanism and launching mechanism until the actuator movement mass is deployed through a rapid acceleration applied to the housing assembly to shoot the projectile from the projectile receiving assemblage.

9. The toy projectile apparatus according to claim **8**, comprising a safety mechanism at the housing assembly with the actuator movement mass deployed to prevent activation of the release point trigger release mechanism.

10. The toy projectile apparatus according to claim **9**, wherein the actuator movement mass is selectively activated through the rapid acceleration to trip the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage.

11. The toy projectile apparatus according to claim **8**, wherein the actuator movement mass is selectively activated through the rapid acceleration to trip the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage.

12. The toy projectile apparatus according to claim **8**, wherein the actuator movement mass is deployed and engages the release point trigger release mechanism based on inertia activating the actuator movement mass through the acceleration applied to the housing assembly thereupon advancing the actuator movement mass to the release point trigger release mechanism.

13. The toy projectile apparatus according to claim **8**, wherein the unadvanced position is maintained with the actuator movement mass away from the release point trigger release mechanism when the priming mechanism engages the launching mechanism in a primed position to prevent the release point trigger release mechanism from activating the launching mechanism until desired by a user.

14. The toy projectile apparatus according to claim **8**, further comprising a safety mechanism that locks the actuator movement mass in the unadvanced position away from the release point trigger release mechanism.

15. A method for shooting a projectile from a toy projectile apparatus, including the steps of:

providing a housing assembly having at least one projectile receiving assemblage;

loading a movably deployable projectile into the projectile receiving assemblage;

providing a launching mechanism adjacent the projectile receiving assemblage for launching the projectile from the assemblage;

manually priming the launching mechanism with a priming mechanism;

engaging the launching mechanism with a release point trigger release mechanism disposed within the housing assembly; and

providing an actuator movement mass maintained at the housing assembly in an unadvanced position away from the release point trigger release mechanism, preventing engaging of the release point trigger release mechanism, selectively activating the actuator movement mass through a certain rapid acceleration to trip the release point trigger release mechanism and shoot the projectile from the projectile receiving assemblage.

16. The method for shooting a projectile according to claim **15**, engaging a safety mechanism to prevent the actuator movement mass from activating the release point trigger release mechanism until desired by a user.

17. The method for shooting a projectile according to claim **16**, latching the actuator movement mass to one or more safety buttons accessible to the user for depressing and holding to release the safety mechanism from the mass and allowing the apparatus to shoot the projectile.

18. The method for shooting a projectile according to claim **15**, affixing plural linkages with the release point trigger release mechanism within the housing assembly for engaging the launching mechanism at release point trigger release mechanism to move with the actuator movement mass when the apparatus experiences a certain acceleration.

19. The method for shooting a projectile according to claim **15**, disposing the actuator movement mass on the outside of the housing assembly.

20. The method for shooting a projectile according to claim **15**, providing a wearable outer housing assembly for securing the housing to a user for the rapid acceleration of the apparatus by the user.

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